



Gastrointestinal Stromal Tumor Presenting Uncommonly as an Intra-lesional Bleed after Antiplatelet Therapy: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Background: Gastrointestinal stromal tumors (GISTs) are rare but the most common mesenchymal tumors of the gastrointestinal tract. It has a variable clinical presentation, making early diagnosis difficult. We report a rare case of intra-lesional bleed as the initial presentation of gastric GIST.

Case Presentation: A middle-aged male patient, presented with the diagnosis of ST-elevation Myocardial Infarction. Angioplasty was done and he was kept on multiple blood thinners. Post-procedure, he became unstable and dropped hemoglobin level. Gastroscopy revealed submucosal gastric mass but no source of active bleeding was found. CT angiogram revealed intra-tumoral bleed within the mass. Hence, CT-guided empiric arterial embolization was done before mass would have ruptured. Later, the mass biopsy revealed GIST. Patient was thereafter managed with surgical resection and chemotherapy.

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Conclusion: This is an unusual initial presentation of GIST. Life-threatening complications of GIST rupture can be prevented if diagnosed early.

Keywords: *Gastrointestinal stromal tumor; intra-lesional bleed; trans-catheter arterial embolization.*

ABBREVIATIONS

Gastrointestinal Stromal Tumor (GIST)

Gastrointestinal (GI)

Computed Tomography (CT)

Transcatheter Arterial Embolization (TAE)

1. INTRODUCTION

Gastrointestinal stromal tumors (GISTs) are rare, they account for 1 to 2 percent of primary gastrointestinal (GI) tract cancers, but the most common mesenchymal neoplasms [1,2]. GISTs arising in the GI tract typically present as subepithelial masses, originating from the interstitial cells of Cajal. The incidence of the GIST is around 15 per million of population per annum [3,4]. It is usually found during adulthood. The median age of diagnosis is between 65 and 69 years and it is equally common in male and female patients [3]. Common molecular alterations are mutations in KIT and PDGFR α genes [5]. Approximately 95% of GISTs are positive for CD117 [6].

GISTs occur throughout the GI tract from the esophagus to the anus. It is most frequently found in the stomach (40 to 60 percent) followed by small bowel (25 to 30 percent) [6]. Rarely, it can arise from mesentery, omentum, and retroperitoneum [7]. GISTs have a variable clinical presentation. They are mostly asymptomatic but can be found incidentally or present with abdominal pain, mass or GI bleeding.

We report a rare case of intra-lesional bleed as the initial presentation of gastric GIST who was prescribed antiplatelet therapy.

2. CASE PRESENTATION

A 51 year old gentleman presented in the emergency department of a private hospital in Pakistan with the complaint of sudden onset of chest pain at rest for the past 6 hours. Pain at central chest region along with left hypochondria and epigastric region, of moderate intensity. Patient also had complaint of exertional dyspnea for two months. Past medical history was

significant for diabetes mellitus and hypertension. He smoked cigarettes occasionally. Family history was significant for coronary artery disease.

He was initially admitted to a local hospital where he was diagnosed and managed as an anterolateral wall myocardial infarction. He was treated with intravenous streptokinase due to unavailability of angiography and then shifted to a higher level of care for percutaneous coronary intervention.

Investigations: When patient presented in our hospital, his workup was done, ECG showed ST elevation up to 6mm in anterior and lateral leads and troponin level 251.7ng/ml (normally less than 57ng/L).

Relevant Base line investigations were done which are as follows; hemoglobin level 14.9g/dl (12.3-16.6), MCV 81.7fL (78.7- 96.3), MCH 27.2pg (25.1-31.6), white blood cell count $14.1 \times 10^3/L$ (4.8-11.3), platelet count $182 \times 10^9/L$ (154-433), serum creatinine 1.2 mg/dl (0.9- 1.3), serum sodium 135mmol/L (136-145), serum potassium 3.7 mmol/L (3.5-5.1), serum chloride 95 mmol/L (98 -107), serum bicarbonate 25.3 mmol/L (20-31), PT 12.5 seconds (9.3-12.8), APTT 27.2 seconds (22.9 - 34.5), Total Bilirubin 1.9mg/dl (0.1-1.2), Direct Bilirubin 0.5mg/dl (0-0.2), Indirect Bilirubin 1.4mg/dl (0.1- 0.8), GGT 48 IU/L (<55), SGPT 45 IU/L (<45), Alkaline phosphatase 106 IU/L (45- 129), AST 73 IU/L (<35) Due to recent pandemic of Covid- 19, nasal swab for PCR was sent which was negative.

Transthoracic echocardiography showed severely reduced left ventricular systolic function. Visually estimated ejection fraction of approximately 20-25%. Basal inferior septum, basal lateral, basal inferior and basal posterior segments were contracting normally while the rest of the segments were akinetic. Chest x-ray was normal. No signs of pulmonary edema.

Treatment: On the diagnosis of Myocardial Infarction, the patient was administered dual antiplatelets, aspirin, and clopidogrel along with heparin infusion. He underwent coronary arteries

angiography which showed 90% stenosis, critical disease in anterior descending branch of the left coronary artery, and 50% stenosis, moderate disease of the right coronary artery. Successful percutaneous coronary angioplasty of a single vessel (left anterior descending artery) was done. Dual antiplatelets, aspirin 75mg and ticagrelor 90mg were continued along with tirofiban infusion due to high thrombus load.

Post-procedure, after 12 hours, the patient developed severe abdominal pain, became hypotensive and tachypneic. His vitals were; blood pressure 96/60mmHg, heart rate 107 beats per minute, respiratory rate 31 breaths per minute, afebrile. On examination, moderate tenderness in epigastrium. Laboratory investigation showed a drop in hemoglobin level from 14.9g/dl to 11.2g/dl. All blood thinners were held. Patient was resuscitated with IV fluids and blood transfusion was started. Bedside gastroscopy was done which showed bulge in the body of stomach, secondary to underlying submucosal gastric mass with normal overlying mucosa and no evidence of recent gastrointestinal bleed. A biopsy was taken, which was inconclusive. Urgent CT abdomen bleeding protocol was done which showed a well-defined heterogeneously enhancing mass lesion in the perigastric region arising from the lesser curvature of the stomach and closely abutting with the left lobe of the liver. It showed intraluminal extension, size 74 x 94 x 99 mm. There was enhancing focus seen in this lesion on the delayed phase representing intra-tumoral bleed. Detailed examination of the patient was done, there was no other obvious cause of bleeding except tumor bleed as evident on

imaging. His GCS was full, hence brain imaging was not considered necessary to be done. Due to persistent clinical deterioration and unstable hemoglobin level, after two packed red blood cells volume of 300ml per bag, he underwent empiric angiogram guided embolization of left gastric artery after 12 hours of resuscitation.

Post-procedure, he was kept in special care unit and serial hemoglobin level monitoring was performed, gradually the patient was stabilized with static hemoglobin on re-initiation of dual antiplatelets one after another. Other cardiac medications were optimized; intravenous broadspectrum antibiotics were given. Patient improved and remained clinically and hemodynamically stable. He got shifted to the ward and later discharged home after seven days of hospitalization.

On follow-up visit, he was clinically stable with static Hemoglobin hence planned for CT guided biopsy (due to unavailability of endoscopic ultrasound) for evaluation and management of the gastric lesion. It was reported as linear cores of a neoplastic lesion bland spindle-shaped cells having faintly eosinophilic cytoplasm. Immunohistochemical stains were positive for CD34, CD117, and DoG-1. Biopsy was consistent with Gastrointestinal tumor (GIST).

As tumor was large (7cm), patient was kept on imatinib for 3 months followed by elective removal of the tumor. Postoperatively, patient remained stable. Single antiplatelet clopidogrel 75mg once daily was restarted from 1st post-operative day. Patient was discharged on the 5th post-operative day.

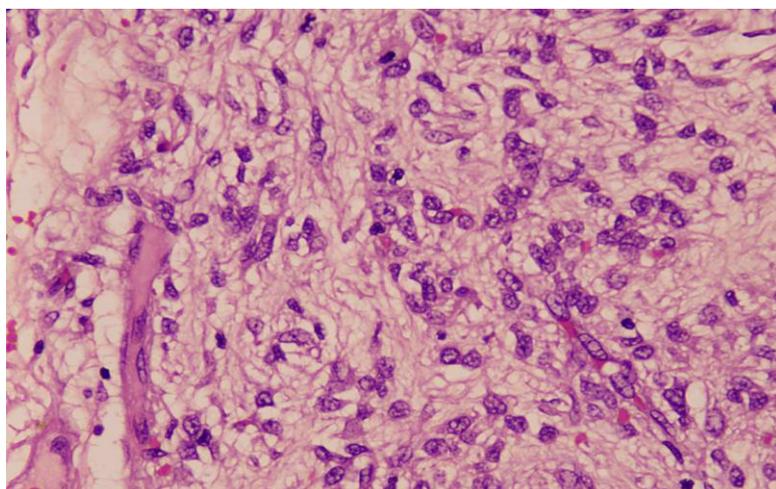


Fig. 1. Gastric GIST in hematoxylin and eosin stain (high power 40x)

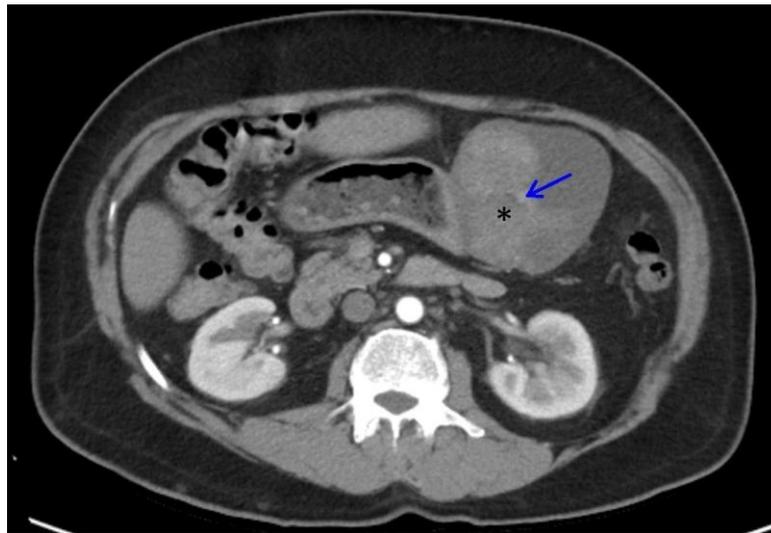


Fig. 2. Contrast enhanced CT scan abdomen, axial view showing heterogeneously enhancing welldefined mass lesion arising from the lesser curvature with enhancing focus representing intra-tumoral bleed. 102x83mm (300 x 300 DPI)

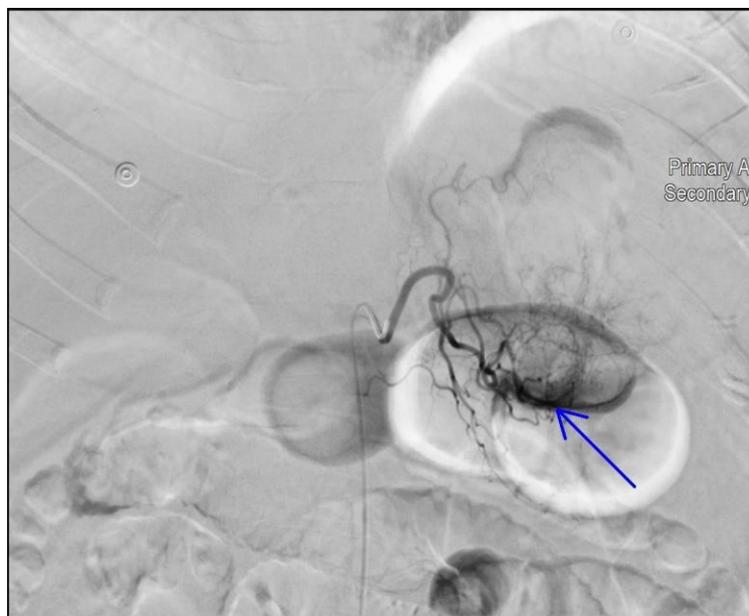


Fig. 3. Mesenteric angiogram of left gastric artery showing abnormal blush, empiric embolization done. 102x83mm (300 x 300 DPI)

3. DISCUSSION

GISTs can present in several different ways depending on the location and size [8,9]. Small GISTs are often asymptomatic and are diagnosed incidentally. They become symptomatic usually when size increases to greater than 5cm. GISTs involving the upper GI tract (stomach, small intestine, or esophagus) could present with GI bleeding, dysphagia, or

obstructive jaundice, whereas those involving the colon or rectum could present with constipation or bowel obstruction [10,11]. "The common presentation includes vague abdominal discomfort, pain, bloating, early satiety, increased abdominal girth, or palpable mass" [10,12,13]. Erosion into the gastrointestinal tract can induce significant intraluminal hemorrhage [14] causing haematemesis, melena or anaemia from occult bleeding [13,15]. Other rare

presentations described in the literature include, intraperitoneal bleeding from ruptured GIST, leading to hemoperitonium [14,16-18], and Intratumor bleeding, as a pre-rupture state [18].

“The incidence of spontaneous intestinal intramural hemorrhage has been reported as 1 in 2500. Ruptured gastric GIST can usually present with occult bleeding, life-threatening bleeding is rare at 1%” [18,19]. “In one study, of 1241 symptomatic gastric GISTs, 626 (54%) patients presented with intra-luminal and 21 (1.7%) with intra-peritoneal bleeding” [8]. The frequency of intra-tumor bleeding is not known [18]. Case reports of ruptured GIST exist but not of intratumoral bleed [16,20]. An extensive literature review has shown only one case report of a GIST presenting with an 'intratumor bleed' [16,21]. This case, to the best of our knowledge, is the first case with intratumoral bleed as the initial presentation of gastric GIST after antiplatelet therapy.

“The exact mechanism for initiation of bleeding in GIST is not completely understood, it may be related to peristalsis of the GI tract that tears the fragile tumor vessel and initiates the bleeding” [20]. Our patient was at high risk of bleeding because of recent use of antithrombotic and then anticoagulation plus dual anti-platelets sequentially for pre-existing illness. This might have precipitated bleeding of the previously undiagnosed gastric GIST. Patients prescribed long-term warfarin therapy are at increased risk of major bleeding, reported to be 1.1% to 8.1%.

“In cases presented as acute gastrointestinal bleeding, endoscopy is usually performed first to determine the source of bleeding. If it cannot be identified, a CT scan or angiography is performed to give additional information” [9,22,23].

Our patient had a major hemoglobin drop and hemodynamic instability. The diagnosis was made based on Computed tomography (CT) findings which revealed a submucosal gastric mass with intralesional hemorrhage. Endoscopy showed no intraluminal bleed. Therefore, Transcatheter arterial embolization (TAE) was done empirically before mass would have ruptured.

“TAE is widely accepted for the treatment of gastroduodenal bleeding that is resistant to medical management and also that is either not explored or not managed via endoscopic

therapy” [24,25]. There have been only a few reports regarding TAE for gastrointestinal bleeding from GIST [18].

According to one study, Twenty (1.2%) patients of 2078 pathologically proven GIST underwent TAE for gastrointestinal bleeding with a technical success rate of 90% [26]. “TAE for GIST, might facilitate induction of the tumor necrosis and decrease the tumor burden, which would subsequently allow minimally invasive surgery” [27].

4. CONCLUSION

Clinical presentation of gastric GIST is varied and intra-lesional bleeding is a rare initial presentation. The clinician needs to be aware of this unusual clinical situation, especially in a patient on multiple blood thinners. Intervention radiology, surgery and gastroenterology teams combined decisions, would lead to successful treatment and prevention of this life-threatening complication of GIST rupture.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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